

What is claimed is:

- 5 1. A method for managing performance information for a communication between communication system terminal endpoints (TEs) communicating over an Internet Protocol (IP) network, comprising the steps of:
- transmitting a Diagnostic Configuration Message (DCM) from a Diagnostic Supervisor (DS) to at least one TE, wherein the DS is capable of being coupled to the at least one TE;
- generating Diagnostic Messages (DMs) at the at least one TE based on diagnostic information concerning IP network transmissions in which the at least one TE participates, the DCM instructing the at least one TE how to format and under what criteria to transmit the DMs;
- transmitting the DMs from the at least one TE to at least one DS; and
- calculating a value for the quality of service of the communication based on the DMs.
2. The method of claim 1, wherein the quality of service is calculated based on diagnostic information in the DMs.
3. The method according to claim 2, wherein the quality of service is based on communication parameters including at least one of the number of collisions, jitter, amount of lost packets and amount of the network usage.
4. The method according to claim 3, wherein the quality of service is based on weighting the communication parameters, the weighting based on an importance associated with each communication parameter.
5. The method according to claim 2, wherein the step of calculating a value for the quality of service includes calculating a TE specific quality of service for each of a near-end TE and at least one far-end TE.
6. The method according to claim 5, wherein each TE specific quality of service is associated with a weighting, the weighting assigned to each TE based on an importance assigned to that TE.
7. The method of claim 2, wherein the method further includes adjusting the transmission parameters of each TE based on the quality of service.

8. The method of claim 7, wherein the adjusting the transmission parameters of each TE based on the quality of service is performed in real time.

9. The method according to claim 2, wherein the communication is transmitted using a plurality of packets each possessing a packet size, the method further comprising the step of
5 determining whether to change the packet size based on the determined value of the quality of service relative to a threshold value QoS_Packet_Threshold.

10. The method according to claim 9, the method further comprising the step of decreasing the packet size if the value of the quality of service is better than the QoS_Packet_Threshold.

10 11. The method according to claim 9, the method further comprising the step of increasing an original packet size if the value of the quality of service is poorer than the QoS_Packet_Threshold.

12. The method according to claim 11, the method further comprising the steps of:
determining if increasing the original packet size improved the quality of service;
and
if the quality of service is improved, then maintaining the increased packet
size.

13. The method according to claim 11, the method further comprising the steps of:
determining if increasing the original packet size improved the quality of service;
and
if the quality of service is not improved, then returning the increased packet
size to the original packet size.

14. The method according to claim 2, wherein communications between TEs are performed using at least one codec, the method further comprising the step of determining
25 whether to change the codec so as to use a different codec based on the determined value of the quality of service relative to a threshold value QoS_Codec_Threshold.

15. The method according to claim 14, wherein the step of determining whether to change the codec includes the steps of

determining if the quality of service is less than QoS_Codec_Threshold;

30 if the quality of service is less than QoS_Codec_Threshold, then determining if there is a lower data value codec available for all callers in the transmission;

if there is a lower data value codec available for all callers in the transmission, then changing the codec from an original data value to the lower data value.

16. The method of claim 15, further comprising the steps of:

determining if changing the codec to the lower data value improved the quality of service; and
if the quality of service is not improved, then returning the codec data value to the original data value.

17. The method according to claim 2, the method further comprising the step of rerouting an IP network connection between two or more TEs to the public switched telephone network (PSTN) based on the determined value of the quality of service relative to a threshold value.

18. The method according to claim 2, the method further comprising the step of determining whether to terminate a communication based on the determined value of the quality of service relative to a threshold value.

19. The method according to claim 2, wherein the communication is voice, modem, facsimile, video or data transmissions.

20. The method according to claim 1, wherein the communication is voice, modem, facsimile, video or data transmissions.

21. A system for managing diagnostic information for a communications system, comprising:

a plurality of terminal endpoints (TEs) capable of communicating over an Internet Protocol (IP) network; and

a Diagnostic Supervisor (DS) capable of being coupled to the IP network, wherein the DS transmits a Diagnostic Configuration Message (DCM) to the TEs; and

wherein one or more of the TEs generate a Diagnostic Message (DMs) based on diagnostic information concerning IP network connections in which the one or more of the TEs participate, the DCM instructs the TEs how to format and when to transmit the DM to the DS, the DS calculates a quality of service based on the information in each DM from each TE.

22. The method of claim 21 wherein each of the TEs transmit the DM to a plurality of DSs and at least one TE.

23. The system according to claim 21, wherein the DS comprises at least one of:

a Configuration Manager;
a Report Manager;
a Real-Time Response Manager; and
an Input/Output (I/O) Manager.

5 24. The method according to claim 21, wherein the quality of service is based on communication parameters including at least one of the number of collisions, jitter, amount of lost packets and amount of the network usage.

10 25. The method according to claim 24, wherein the quality of service is based on weighting the communication parameters, the weighting based on an importance associated with each communication parameter.

20 26. A computer program product comprising a computer usable medium having control logic stored therein for causing a computer to managing diagnostic and performance information for communications system terminal endpoints (TEs) communicating over an Internet Protocol (IP) network, the control logic comprising:

25 a first computer readable program code means for causing the computer to transmit a Diagnostic Configuration Message (DCM) from a Diagnostic Supervisor (DS) to the TEs, wherein the DS is capable of being coupled to the communications systems;

30 a second computer readable program code means for causing the computer to generate Diagnostic Messages (DMs) at the TEs based on diagnostic information concerning IP network connections in which the TEs participate, wherein the DCM instructs the TEs how to format and under what criteria to transmit the DMs;

35 a third computer readable program code means for causing the computer to transmit the DMs from the TEs to the DS or to a plurality of DSs; and

40 a fourth computer readable program code means for causing the computer to generate a quality of service based on performance information in the DMs.

27. The computer program product according to claim 26, further comprising a fifth computer readable program code means for causing the computer to transmit the DMs to one or more TEs.